

AMENDMENT TO THE CLAIMS

1. (original) Apparatus for game playing, comprising:

an image generation machine capable of driving

a television, said image generation machine at least in-part controlled by a

controller for controlling electronic imagery, said controller comprising:

a housing structured to be held by two hands simultaneously, said housing having a left-hand area and right-hand area,

a four-way rocker located in said left-hand area of said housing,

a plurality of depressible buttons at least in-part exposed on said housing with the depressible buttons acting on

electricity manipulating devices contained within said housing and controlled by depression of said depressible buttons for manipulating electrical outputs at least useful for controlling electronic imagery; at least one of said electricity manipulating devices is a pressure-sensitive variable-conductance sensor for defining an analog electrical output proportional to varying physical pressure applied to a depressible button of the plurality of depressible buttons, said button and said sensor are positioned in said right-hand area of said housing;

means for outputting a signal from said controller to said image generation machine, said signal at least representational of said analog electrical output;

said sensor comprises:

circuit trace material supported by

a sheet, said sheet located within said housing,

a resilient dome cap positioned over said sheet and said circuit trace material, said resilient dome cap depressible by depressive pressure applied to said button.

2. (original) Apparatus for game playing in accordance with claim 1 wherein said resilient dome cap has an underside substantially convexed surface.

3. (original) Apparatus for game playing in accordance with claim 2 wherein

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said substantially convexed surface deformable to at least partially flatten-out with pressure applied to said button, the deforming of said substantially convexed surface causing electrical contact of additional surface area of the circuit trace material.

4. (original) Apparatus for game playing in accordance with claim 3 wherein said circuit trace material is in an interdigitated form in an area under said resilient dome cap, and

said sheet is a circuit board.

5. (original) Apparatus for game playing in accordance with claim 4 further including conductive material contacting the interdigitated circuit trace material when said button is depressed.

6. (original) Apparatus for game playing, comprising
an image generation machine capable of driving an image display, said image
generation machine at least in-part controlled by

a game controller structured to be held by a human user in two hands
simultaneously, said controller comprising:

housing means for being held by the human user;

a plurality of depressible individual buttons exposed on said housing
means and depressible by digits of the user's hands to operate

electricity manipulating devices contained within said housing means and
operated for manipulating electrical outputs of said electricity manipulating
devices by depression of said depressible individual buttons; at least one of said
electricity manipulating devices including

means for an analog electrical output proportional to varying physical
pressure applied by at least one depressible individual button of the plurality of
depressible individual buttons;

means for outputting a signal from said controller to said image generation
machine, said signal at least representational of said analog electrical output.

7. (original) Apparatus for game playing in accordance with claim 6
wherein said housing means is structured as a single housing to be held by two
hands simultaneously.

8. (original) Apparatus for game playing in accordance with claim 7 wherein said means for an analog electrical output includes a resilient dome cap positioned over a first circuit trace and a second circuit trace, the circuit traces are in close proximity to one another.

9. (original) Apparatus for game playing in accordance with claim 8 further comprising

conductive material positioned to contact across the circuit traces when said resilient dome cap is depressed.

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10. (original) Apparatus for game playing in accordance with claim 9 wherein said resilient dome cap includes a substantially convexed portion positioned to press against said conductive material when said resilient dome cap is depressed.

11. (original) Apparatus for game playing in accordance with claim 10 wherein said convexed portion of said resilient dome cap is deformable when pressed against said conductive material.

12. (original) Apparatus for game playing in accordance with claim 11 further comprising

a left hand area and a right hand area of said housing, and
said one depressible individual button is position in said right hand area.

13. (original) Apparatus for game playing in accordance with claim 12 further comprising
a four-way rocker at least in part exposed on said housing in said left hand area.

14. (original) Apparatus for game playing in accordance with claim 13 further comprising
four analog sensors associated with said four-way rocker.

15. (original) Apparatus for game playing in accordance with claim 14 further comprising
each sensor of said four analog sensors including a resilient dome cap.

16. (original) Apparatus for game playing, comprising
a game console capable of controlling imagery shown by a television, said game console at least in-part controlled by
a controller, said controller comprising:
a housing to be grasped and held simultaneously by two hands of a human user; said housing including a right-hand area and a left-hand area, said right-hand area being an area for grasping by the user's right hand, said left-hand area being an area for grasping by the user's left hand;

a plurality of depressible individual buttons located on said housing in said right-hand area and positioned to be within reach of the user's right-hand thumb with the user's hand grasping said housing in said right-hand area;

at least one button of said depressible individual buttons including means for defining an analog electrical output proportional to varying applied physical pressure;

means for outputting from said controller to said game console a signal at least representational of said analog electrical output.

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17. (original) Apparatus for game playing in accordance with claim 16 wherein said means for defining an analog electrical output comprises:

a resilient dome cap, said resilient dome cap positioned over
conductive material, said conductive material positioned over
circuit trace material.

18. (original) Apparatus for game playing in accordance with claim 17 wherein said left-hand area includes a four-way rocker, said four-way rocker is associated with four electricity manipulating devices in part located on

a circuit board, said circuit board continuing from said left-hand area into said right-hand area, said circuit board supporting said circuit trace material associated with said at least one button, said circuit trace material formed as interdigitated circuit traces, said resilient dome cap having a substantially convex shaped underside,

wherein a first level of pressure applied to said button causes said substantially convex shaped underside to contact said conductive material to a first surface area of said interdigitated circuit traces, and a second level of pressure applied to said button causes said convex shaped underside to contact said conductive material to a second surface area of said interdigitated circuit traces, said second level of pressure being greater than said first level of pressure and said second surface area being greater than said first surface area.

21 19. (original) Apparatus for game playing in accordance with claim 18
 wherein said at least one button located in said right hand area is at least four buttons located in said right hand area.

20. (currently amended) ~~Apparatus for game playing~~ Game playing apparatus, comprising:

an image display ~~for showing~~ showing imagery;

an image generation machine ~~capable of~~ at least in part controlling the imagery shown by said image display;

a game controller at least in part ~~for controlling~~ controlling said image generation machine;

said game controller comprising:

a housing to be grasped and held simultaneously by two hands of a human user during use, said housing including a right-hand area and a left-hand

~~area, said right hand area being an area for grasping by the user's right hand,
said left hand area being an area for grasping by the user's left hand;~~

~~a plurality of depressible electricity manipulating devices each at least in-
part exposed on said right-hand area of said housing, at least some of said
plurality of electricity manipulating devices positioned on said housing to be
within reach of the user's right hand thumb;~~

~~at least one device, of said electricity manipulating devices, includes
means for creating an analog electrical signal representing varying applied
physical pressure;~~

~~a resilient dome cap included in said at least one device;
—— a substantially convex shaped portion of said resilient dome cap;
—— conductive material positioned adjacent to said substantially convex
shaped portion of said resilient dome cap;
—— circuit trace material positioned adjacent to said conductive material; and,~~

~~at least one of said electricity manipulating devices includes means for
creating an On/Off signal;~~

~~each of said electricity manipulating devices electrically connected to
—— electronics means for at least reading the signals of said electricity
manipulating devices,~~

~~means for electronics at least in part converting the signals into control of
the imagery shown by said display, the signals representing at least the analog
nature of said analog electrical signal, and the signals representing at least the
On/Off nature of said On/Off signal.~~

21. (currently amended) ~~Apparatus for game playing~~ Game playing apparatus according to claim 20 wherein said at least one device, and said at least one of said electricity manipulating devices, are separate devices of said electricity manipulating devices, and said at least one of said electricity manipulating devices creating only an On/Off signal.

22. (currently amended) ~~Apparatus for game playing~~ Game playing apparatus according to claim 20 wherein said at least one device, and said at least one of said electricity manipulating devices, is a single device of said electricity manipulating devices.

23. (original) Apparatus for image control, comprising:
a machine for controlling imagery, said machine at least in-part controlled by
a hand held controller,
said controller comprising:
a housing shaped to be grasped and held simultaneously by two hands of a human user during use, said housing including a right-hand area and a left-hand area;
a plurality of depressible electricity manipulating devices each at least in-part exposed on said housing,

at least one of said electricity manipulating devices is a sensor, said sensor located in said right-hand area of said housing, said sensor comprising:

a depressible resilient dome cap positioned over electrically conductive material, variable depression of said dome cap defining an analog electrical output representing said variable depression,

active electronics means for interpreting said analog electrical output and causing variable control of the imagery.

24. (original) Apparatus for image control according to claim 23 wherein said conductive material is pressure-sensitive variable-conductance material.

25. (original) Apparatus for image control according to claim 23 wherein said depressible resilient dome cap has a substantially convexly rounded inner portion, said substantially convexly rounded inner portion comprising electrically conductive material.

26. (original) Apparatus for image control according to claim 23 wherein said depressible resilient dome cap has a substantially convexly rounded inner portion positioned over

electrically conductive material.

27. (original) Apparatus for image control according to claim 26 wherein said active electronics means includes an integrated circuit chip.

28. (original) Apparatus for image control according to claim 27 wherein said active electronics means includes a micro-controller.

29. (original) Apparatus for image control according to claim 27 wherein said active electronics means includes an ASIC.

30. (currently amended) An electricity manipulating sensor for controlling electronic imagery, said sensor comprising;

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a depressible individual button ~~surface area positioned to push~~
—— a depressible resilient dome cap to apply pressure to
electrically conductive material, said sensor for creating analog output proportional to varying physical pressure applied by the a human user's digit to ~~said depressible surface~~ said individual button; said sensor electrically connected to

active electronics, said active electronics ~~means for~~ interpreting the analog output of said sensor;

said sensor positioned as part of a two-hand held controller, said controller for controlling imagery at least in part in relation to the analog output.

31. (currently amended) An electricity manipulating sensor for a control device according to claim 30 wherein within said sensor is a ~~said~~ depressible resilient

dome cap having is a substantially convexed shaped surface area to apply pressure to said electrically conductive material.

32. (original) An electricity manipulating sensor for a control device according to claim 31 wherein said substantially convexed shaped surface area has an apex, said surface area is a rounded bulging area which is flexible, said rounded bulging area increasingly flattens with increasing pressure applied to said resilient dome cap.

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33. (original) An electricity manipulating sensor for a control device according to claim 32 wherein the flattening of said rounded bulging area causes additional surface area contact of said electrically conductive material with circuit trace material.

34. (original) An electricity manipulating sensor for a control device according to claim 33 wherein said circuit trace material comprises a first circuit trace and a second circuit trace.

35. (original) An electricity manipulating sensor for a control device according to claim 34 wherein said first circuit trace and said second circuit trace are interdigitated.

36. (currently amended) An electricity manipulating sensor for a control device according to claim 33 wherein said control device is a game control device including a housing to be grasped and held simultaneously by two hands of the human user during use, said housing including a right-hand area and a left-hand area, said right-hand area being an area for at least grasping by the user's right hand, said left-hand area being an area for at least grasping by the user's left hand, said depressible ~~surface-area~~ individual button is located in said right-hand area.

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37. (currently amended) An electricity manipulating sensor for a control device according to claim 36 wherein said housing is a single housing, and said depressible ~~surface-area~~ individual button is located to be depressed by a the user's right-hand thumb.

38. (currently amended) An electricity manipulating sensor for a control device according to claim 36 wherein said housing is a single housing, and said ~~surface-area~~ individual button is located to be depressed by a user's right-hand index finger.

39. (original) Game apparatus comprising:

an image display displaying game imagery, said image display connected to

an image generation machine, said image generation machine driving the game imagery, said image generation machine at least in-part controlled by

a controller, said controller comprising:

a single housing to be grasped and held simultaneously by two hands of a human user, said housing including a right-hand area and a left-hand area;

a plurality of depressible electricity manipulating devices each at least in-part exposed on said housing;

at least one of said electricity manipulating devices including means for creating an On/Off output, and

at least one of said electricity manipulating devices including a pressure-sensitive variable-conductance means for creating a varying output related to varying pressure applied by a user's right-hand digit;

active electronics means for at least interpreting the outputs of said at least one electricity manipulating device.

40. (original) Game apparatus according to claim 39 wherein said varying pressure is applied by the user's right-hand thumb.

41. (original) Game apparatus according to claim 39 wherein said varying pressure is applied by the user's right-hand index finger.

42. (original) Game apparatus according to claim 39 wherein a four-way rocker is located in said left-hand area.

43. (original) Game apparatus according to claim 42 wherein said pressure-sensitive variable-conductance means includes means for establishing additional current paths, whereby electrical resistance is lowered according to pressure applied by the user's right-hand digit.

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44. (original) Game apparatus according to claim 43 wherein said pressure-sensitive variable-conductance means includes a deformable surface on an underside of a resilient dome cap.

45. (original) Game apparatus according to claim 44 wherein said varying pressure is applied by the user's right-hand thumb.

46. (original) Game apparatus according to claim 44 wherein said varying pressure is applied by the user's right-hand index finger.

47. (original) Game apparatus according to claim 45 wherein said deformable surface includes an apex.
